

Appl. No. 09/619,520  
Amdt. dated February 24, 2005  
Reply to Office Action of August 25, 2004

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

- 1                    1.        (Currently Amended) An apparatus for pumping and sterilizing or  
2        disinfecting liquid held in a reservoir, comprising:  
3                    a fluid conduit, which is at least partially submerged in the liquid held in the  
4        reservoir;  
5                    a ultraviolet light source which is at least partially within the fluid conduit, the  
6        ultraviolet light source comprising a ~~protective sleeve surrounding at least a portion of the~~  
7        ~~ultraviolet light source~~ protective coating surrounding and in touching proximity with at least a  
8        portion of the ultraviolet light source, the protective coating hermatically sealing the ultraviolet  
9        light source, the protective coating having properties that allow the germicididal energy to pass;  
10        and and protecting the ultraviolet light source from breaking; and  
11                    an air drive unit coupled to the fluid conduit and adapted to cause a liquid to flow  
12        through the fluid conduit and past the ~~at least a portion of the ultraviolet light source in the fluid~~  
13        conduit, wherein said ultraviolet light source generates an ultraviolet light which kills  
14        microorganisms in the liquid and said fluid conduit.
- 1                    2.        (Previously Presented) The apparatus as recited in claim 1, wherein said  
2        ultraviolet light source comprises a casing for holding a gas and a vaporizable material, and at  
3        least one electrode electrically coupled to a power source for exciting said gas and said  
4        vaporizable material.
- 1                    3.        (Currently Amended) The apparatus as recited in claim 2, wherein said  
2        protective sleeve coating comprises a UV transmissive material.
- 1                    4.        (Currently Amended) The apparatus as recited in claim 3, wherein said  
2        protective sleeve coating is a fluoropolymer sleeve coating.

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1                   5.       (Original) The apparatus as recited in claim 2, wherein said casing  
2 comprises a fluoropolymer casing.

1                   6.       (Currently Amended) The apparatus as recited in claim 4, wherein said  
2 casing comprises a quartz or glass casing and said fluoropolymer sleeve coating surrounds said  
3 quartz or glass casing.

1                   7.       (Currently Amended) The apparatus as recited in claim 3, wherein said  
2 protective sleeve coating comprises a silicon polymer or silicone material.

1                   8.       (Currently Amended) The apparatus as recited in claim 4, wherein said  
2 fluoropolymer sleeve coating is made from a fluoropolymer selected from the group of  
3 fluoropolymers including, PTFE, FEP, PFA, AF, and Tefzel ETFE.

1                   9-12. (Cancelled)

1                   13.       (Currently Amended) The apparatus as recited in claim 6, wherein said  
2 fluoropolymer sleeve coating is heat shrunk around said quartz or glass casing of said ultraviolet  
3 light source.

1                   14.       (Currently Amended) The apparatus as recited in claim 6, wherein said  
2 fluoropolymer sleeve coating is form pressed around said quartz casing of said ultraviolet light  
3 source.

1                   15.       (Currently Amended) The apparatus as recited in claim 6, wherein said  
2 fluoropolymer sleeve coating is formed around said quartz or glass casing of said ultraviolet light  
3 source by dipping said ultraviolet light source into a liquid material.

1                   16.       (Currently Amended) The apparatus as recited in claim 1, further  
2 comprising a power source, wherein said power source is a solar power source connected to said  
3 ultraviolet light source, and wherein said protective sleeve coating surrounds said solar power

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4 source and said ultraviolet light source and hermetically seals said solar power source with said  
5 ultraviolet light source.

1 17. (Currently Amended) The apparatus as recited in claim 1, wherein said  
2 ultraviolet light source comprises a first end portion, a second end portion, and an elongated  
3 body portion formed between said first end portion and said second end portion, and wherein  
4 said protective sleeve comprises a fluoropolymer sleeve coating covering at least a portion of  
5 said elongated body portion and first and second end caps covering said first and said second end  
6 portions, respectively, and forming a seal with the fluoropolymer sleeve coating.

1 18. (Original) The apparatus as recited in claim 17, wherein said first and said  
2 second end caps comprise fluoropolymer end caps.

1 19. (Original) The apparatus as recited in claim 17, wherein said first and said  
2 second end caps comprise silicone end caps.

1 20. (Currently Amended) The apparatus as recited in claim 17, wherein said  
2 first and said second end caps are sealed to said protective sleeve coating using a silicone sealer.

1 21. (Cancelled)

1 22. (Currently Amended) A method of pumping and sterilizing or disinfecting  
2 a liquid held in a reservoir, comprising the steps of:

3 positioning a fluid conduit at least partially submerged in the liquid held in the  
4 reservoir;

5 placing an ultraviolet light source at least partially within the fluid conduit, the  
6 ultraviolet light source comprising a ~~protective sleeve surrounding at least a portion of the~~  
7 ~~ultraviolet light source~~ a protective coating surrounding and in touching proximity with at least a  
8 portion of the ultraviolet light source, the protective coating hermetically sealing the ultraviolet  
9 light source, the protective coating having properties that allow the germicidal energy to pass;  
10 ~~and preventing the ultraviolet light source from breaking;~~

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11 pumping air into the fluid conduit to pump liquid through the fluid conduit and  
12 past at least a portion of the ultraviolet light source; and  
13 illuminating said ultraviolet light source so that an ultraviolet light is generated,  
14 killing microorganisms in the liquid and said fluid conduit.

1 23. (Original) The method as recited in claim 22, wherein said ultraviolet  
2 light source comprises a casing for holding a gas and a vaporizable material, and at least one  
3 electrode electrically coupled to said power source for exciting said gas and said vaporizable  
4 material.

1 24. (Currently Amended) The method as recited in claim 23, wherein said  
2 protective sleeve coating is a fluoropolymer sleeve.

1 25. (Original) The method as recited in claim 23, wherein said casing  
2 comprises a fluoropolymer casing.

1 26. (Currently Amended) The method as recited in claim 24, wherein said  
2 casing comprises a quartz or glass casing and said fluoropolymer sleeve coating surrounds said  
3 quartz or glass casing.

1 27. (Currently Amended) The method as recited in claim 24, wherein said  
2 fluoropolymer sleeve coating is made from a fluoropolymer selected from the group of  
3 fluoropolymers including, PTFE, FEP, PFA, AF, and Tefzel ETFE.

1 28. (Currently Amended) The method as recited in claim 23, wherein said  
2 protective ~~sleeve~~ coating comprises a silicon polymer or silicone material.

1 29. (Cancelled)

1 30. (Currently Amended) The method as recited in claim 22 , wherein a  
2 protective sleeve coating comprises a removable container.

1 31. (Cancelled)

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1                   32.   (Cancelled)

1                   33.   (Currently Amended) The method as recited in claim 26, wherein the  
2 fluoropolymer sleeve coating is heat shrunk around said quartz or glass casing of said ultraviolet  
3 light source.

1                   34.   (Currently Amended) The method as recited in claim 26, wherein the  
2 fluoropolymer sleeve coating is form pressed around said quartz or glass casing of said  
3 ultraviolet light source.

1                   35.   (Currently Amended) The method as recited in claim 24, wherein said  
2 fluoropolymer sleeve coating is formed around said quartz or glass casing of said ultraviolet light  
3 source by dipping said ultraviolet light source into a fluoropolymer liquid material.

1                   36.   (Currently Amended) The method as recited in claim 22, wherein said  
2 power source is a solar power source connected to an ultraviolet light source, and wherein a  
3 protective sleeve coating surrounds said solar power source and said ultraviolet light source and  
4 hermetically seals said solar power source with said ultraviolet light source.

1                   37.   (Currently Amended) The method as recited in claim 22, wherein a  
2 ultraviolet light source comprises a first end portion, a second end portion, and an elongated  
3 body portion formed between said first end portion and said second end portion, and wherein  
4 said protective sleeve comprises a fluoropolymer sleeve coating covering at least a portion of  
5 said elongated body portion and first and second end caps covering said first and said second end  
6 portions, respectively, and forming a seal with the fluoropolymer sleeve coating.

1                   38.   (Original) The method as recited in claim 37, wherein said first and said  
2 second end caps comprise fluoropolymer end caps.

1                   39.   (Original) The method as recited in claim 37, wherein said first and said  
2 second end caps comprise silicone end caps.

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1                   40.    (Currently Amended) The method as recited in claim 37, wherein said  
2   first and said second end caps are sealed to said protective ~~sleeve~~ coating using a silicone sealer.

1                   41.    (Cancelled)

1                   42.    (Cancelled)